

2012 Johnsongrass Control Trials

Introduction

Johnsongrass is a perennial warm season grass, listed as a noxious weed, and a common problem on right-of-way sites. There are a number of herbicides labeled and available to control johnsongrass but some are nonselective or are selective for johnsongrass but can still damage desirable cool season turf, like tall fescue. One of the more selective herbicides is Fusion but a label change has made it unavailable for use on right-of-way sites. These trials were established to evaluate a range of control/suppression options (alternatives to Fusion) and how they affected tall fescue.

Materials and Methods

Trials were established July 18, 2012 at Spindletop Research Farm and at the Hwy 27/29 interchange south of Nicholasville. The trials had 15 treatments and 3 replications arranged in a randomized complete block design with 5 ft by 30 ft plots. Application was at 30 gallons /acre. At Spindletop, the johnsongrass was 12 to 20 inches tall with most of the plots at 12 inches and overall, about 10% of plants had emerged seedheads. At the Hwy 27/29 interchange, the plants were larger and had greater differences in growth among the plots and more vigorous growth overall than at Spindletop. They ranged in height from 12 to 36 inches, with 2/3 of plots at 12 inches and no heading while 1/3 were at 36 inches and 70% heading. These plots did not include tall fescue so a fescue damage trial was established Aug. 6, 2012 at Spindletop Research Farm. The plots were 5 ft x 20 ft with 5 ft unsprayed strips between each of the plots. The tall fescue canopy was at 7 inches (2 green fully expanded leaves per tiller). It was slower to resume growth after the drought than the johnsongrass so this trial was established later than the johnsongrass control trials. Johnsongrass control was assessed 23 (8/10/2012), 64 (9/20/2012), and 356 (7/9/2013) days after treatment (DAT) at Spindletop and 23, 64, and 348 (7/1/2013) DAT at the Hwy 27/29 interchange. Tall fescue damage (0 = dead to 9 = fully green; with unsprayed strips set at 8.0) was assessed 15 (8/21/2012), 31 (9/6/2012), 70 (10/15/2012), and 284 (5/17/2013) DAT. Data were analyzed using ARM software and treatment means were compared using Fisher's LSD at $p = 0.05$.

Table 1 lists the treatments, active ingredients and application rates. The 2011 Fusion label rates for selective control of johnsongrass were 7 to 9 fl oz per acre (Trt. 1 & 2). The Fusilade II label has repeated applications at 6 fl oz per acre to suppress johnsongrass in fine turf (Trt. 3). Trt. 4 is double this rate. The Acclaim Extra label lists 20 fl oz per acre to control seedling johnsongrass 12 – 24 inches tall (Trt. 5); 39 fl oz per acre to control rhizome johnsongrass 24 to 60 inches tall (Trt. 6); and a combination of Acclaim and Fusilade for improved turfgrass tolerance to control rhizome johnsongrass 10 to 25 inches tall (Trt. 7). The Outrider label rates for selective control in tall fescue turf are 0.75 to 1 oz per acre (Trt. 8 & 9). Roundup (Trt. 10) and Journey (Trt. 13) are non-selective. Clearcast (Trt. 11) has an aquatic label and may be used close to waterways. The high rate of Plateau in Trt. 12 will severely damage tall fescue. Pastora (Trt. 14) is only labeled for warm season pastures.

Results and Discussion

At Spindletop all the treatments controlled johnsongrass to some extent 64 and 356 DAT (Table 2). The most effective treatments 64 DAT were the 2X Fusilade (Trt. 4), both Outrider treatments (Trt. 8 & 9), Clearcast (Trt. 11), Plateau (Trt. 12), and Journey (Trt. 13), ranging from 75 to 94%. The most effective treatments 348 DAT were one of the Outrider (0.75 oz/ac) (63%) (Trt. 8) and Journey (92%) (Trt. 13).

Similarly, at the Hwy 27/29 interchange all the treatments controlled johnsongrass to some extent 64 and 348 DAT (Table 3). The most effective treatments 64 DAT were Plateau (90%) (Trt. 12) and Journey (92%) (Trt. 13). These were still the most effective treatments 348 DAT along with the high Outrider rate (1oz/ac) treatment (Trt. 9). Many of the treatments were not as efficacious on the larger and more vigorous johnsongrass plants at this location as they were at Spindletop.

Severe fescue damage was evident 15 DAT with the Roundup, Clearcast and Journey treatments (Trt. 10, 11, 13) (Table 4) and became more severe for these treatments 31 DAT. The Pastora treatment (Trt. 14) was also exhibiting damage 31 DAT although the fescue had recovered somewhat by 70 DAT while the other three treatments still had severe damage. By 284 DAT, there were no color differences among the treatments but stand density may not have fully recovered.

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Table 1. Treatments and Active Ingredients for Johnsongrass Control Trials

Trt. No.	Product Name	Rate	Rate Unit	Active Ingredient(s)	ai Rate (per acre)
1	Fusion Activator 90	7 0.25	FL OZ/A % V/V	fluazifop + fenoxaprop	1.75 oz + 0.49 oz
2	Fusion Activator 90	9 0.25	FL OZ/A % V/V	fluazifop + fenoxaprop	2.25 oz + 0.63 oz
3	Fusilade II Activator 90	6 0.25	FL OZ/A % V/V	fluazifop	1.5 oz
4	Fusilade II Activator 90	12 0.25	FL OZ/A % V/V	fluazifop	3 oz
5	Acclaim Extra Activator 90	20 0.25	FL OZ/A % V/V	fenoxaprop	1.4 oz
6	Acclaim Extra Activator 90	39 0.25	FL OZ/A % V/V	fenoxaprop	2.78 oz
7	Acclaim Extra Fusilade II COC	7 14 1	FL OZ/A FL OZ/A % V/V	fenoxaprop fluazifop	0.5 oz 3.5 oz
8	Outrider Activator 90	0.75 0.25	OZ/A % V/V	sulfosulfuron	0.563 oz
9	Outrider Activator 90	1 0.25	OZ/A % V/V	sulfosulfuron	0.75 oz
10	Roundup ProMax	22	FL OZ/A	glyphosate	12.4 oz ae
11	Clearcast MSO	32 1	FL OZ/A % V/V	imazamox	4 oz ae
12	Plateau MSO	8 1	FL OZ/A % V/V	imazapic	2 oz ae
13	Journey MSO	21.3 1	FL OZ/A % V/V	imazapic + glyphosate	2 oz ae + 4 oz ae
14	Pastora Activator 90	1 0.25	OZ/A % V/V	nicosulfuron + metsulfuron	0.562 oz + 0.15 oz
15	Nontreated Check				

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Table 2: Treatments and Results for Johnsongrass Control Trial at Spindletop

Trt. No.	Product Name	Rate	Rate Unit	% Control		
				23 DAT	64 DAT	356 DAT
1	Fusion Activator 90	7 0.25	FL OZ/A % V/V	22 <i>fg</i>	45 <i>e</i>	10 <i>ef</i>
2	Fusion Activator 90	9 0.25	FL OZ/A % V/V	63 <i>ab</i>	57 <i>cde</i>	58 <i>bc</i>
3	Fusilade II Activator 90	6 0.25	FL OZ/A % V/V	53 <i>abcd</i>	40 <i>e</i>	37 <i>bcde</i>
4	Fusilade II Activator 90	12 0.25	FL OZ/A % V/V	50 <i>abcde</i>	75 <i>abcd</i>	58 <i>bc</i>
5	Acclaim Extra Activator 90	20 0.25	FL OZ/A % V/V	53 <i>abcd</i>	52 <i>de</i>	45 <i>bcd</i>
6	Acclaim Extra Activator 90	39 0.25	FL OZ/A % V/V	62 <i>abc</i>	53 <i>de</i>	30 <i>cdef</i>
7	Acclaim Extra Fusilade II COC	7 14 1	FL OZ/A FL OZ/A % V/V	57 <i>abc</i>	57 <i>cde</i>	23 <i>def</i>
8	Outrider Activator 90	0.75 0.25	OZ/A % V/V	40 <i>bcdef</i>	88 <i>ab</i>	63 <i>ab</i>
9	Outrider Activator 90	1 0.25	OZ/A % V/V	27 <i>defg</i>	82 <i>abc</i>	55 <i>bc</i>
10	Roundup ProMax	22	FL OZ/A	35 <i>cdef</i>	45 <i>e</i>	33 <i>bcde</i>
11	Clearcast MSO	32 1	FL OZ/A % V/V	23 <i>efg</i>	85 <i>ab</i>	53 <i>bcd</i>
12	Plateau MSO	8 1	FL OZ/A % V/V	53 <i>abcd</i>	93 <i>ab</i>	53 <i>bcd</i>
13	Journey MSO	21.3 1	FL OZ/A % V/V	70 <i>a</i>	94 <i>a</i>	92 <i>a</i>
14	Pastora Activator 90	1 0.25	OZ/A % V/V	38 <i>bcdef</i>	67 <i>bcde</i>	30 <i>cdef</i>
15	Nontreated Check			0 <i>g</i>	0 <i>f</i>	0 <i>g</i>

Means within a column followed by the same letter are not different according to Fisher's Protected LSD at P < 0.05.

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Table 3: Treatments and Results for Johnsongrass Control Trial at Hwy 27/29 Interchange

Trt. No.	Product Name	Rate	Rate Unit	% Control		
				23 DAT	64 DAT	348 DAT
1	Fusion Activator 90	7 0.25	FL OZ/A % V/V	48 <i>abcd</i>	23 <i>cd</i>	5 <i>ef</i>
2	Fusion Activator 90	9 0.25	FL OZ/A % V/V	45 <i>abcde</i>	15 <i>d</i>	13 <i>cdef</i>
3	Fusilade II Activator 90	6 0.25	FL OZ/A % V/V	37 <i>cde</i>	8 <i>d</i>	3 <i>f</i>
4	Fusilade II Activator 90	12 0.25	FL OZ/A % V/V	38 <i>bcde</i>	57 <i>b</i>	10 <i>cdef</i>
5	Acclaim Extra Activator 90	20 0.25	FL OZ/A % V/V	23 <i>def</i>	2 <i>d</i>	8 <i>def</i>
6	Acclaim Extra Activator 90	39 0.25	FL OZ/A % V/V	23 <i>def</i>	7 <i>d</i>	7 <i>def</i>
7	Acclaim Extra Fusilade II COC	7 14 1	FL OZ/A FL OZ/A % V/V	72 <i>a</i>	42 <i>bc</i>	15 <i>cdef</i>
8	Outrider Activator 90	0.75 0.25	OZ/A % V/V	38 <i>bcde</i>	58 <i>b</i>	23 <i>cdef</i>
9	Outrider Activator 90	1 0.25	OZ/A % V/V	25 <i>def</i>	57 <i>b</i>	57 <i>ab</i>
10	Roundup ProMax	22	FL OZ/A	25 <i>def</i>	8 <i>d</i>	32 <i>bcde</i>
11	Clearcast MSO	32 1	FL OZ/A % V/V	67 <i>ab</i>	60 <i>b</i>	37 <i>bc</i>
12	Plateau MSO	8 1	FL OZ/A % V/V	42 <i>bcde</i>	90 <i>a</i>	80 <i>a</i>
13	Journey MSO	21.3 1	FL OZ/A % V/V	58 <i>abc</i>	92 <i>a</i>	83 <i>a</i>
14	Pastora Activator 90	1 0.25	OZ/A % V/V	18 <i>ef</i>	53 <i>b</i>	33 <i>bcd</i>
15	Nontreated Check			0 <i>f</i>	0 <i>d</i>	0 <i>f</i>

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Table 4: Treatments and Results for Fescue Damage Trial at Spindletop

Trt. No.	Product Name	Rate	Rate Unit	Tall Fescue Color (0-9)			
				15 DAT	31 DAT	70 DAT	284 DAT
1	Fusion Activator 90	7 0.25	FL OZ/A % V/V	8.0 <i>a</i>	8.0 <i>a</i>	8.0 <i>a</i>	8.0
2	Fusion Activator 90	9 0.25	FL OZ/A % V/V	8.0 <i>a</i>	7.8 <i>a</i>	8.0 <i>a</i>	8.0
3	Fusilade II Activator 90	6 0.25	FL OZ/A % V/V	7.7 <i>a</i>	7.3 <i>ab</i>	7.7 <i>a</i>	8.0
4	Fusilade II Activator 90	12 0.25	FL OZ/A % V/V	7.5 <i>a</i>	7.7 <i>ab</i>	8.0 <i>a</i>	8.0
5	Acclaim Extra Activator 90	20 0.25	FL OZ/A % V/V	7.8 <i>a</i>	8.0 <i>a</i>	8.0 <i>a</i>	8.0
6	Acclaim Extra Activator 90	39 0.25	FL OZ/A % V/V	7.5 <i>a</i>	8.0 <i>a</i>	8.0 <i>a</i>	8.0
7	Acclaim Extra Fusilade II COC	7 14 1	FL OZ/A FL OZ/A % V/V	7.7 <i>a</i>	7.8 <i>a</i>	8.0 <i>a</i>	8.0
8	Outrider Activator 90	0.75 0.25	OZ/A % V/V	7.5 <i>a</i>	7.7 <i>ab</i>	8.0 <i>a</i>	8.0
9	Outrider Activator 90	1 0.25	OZ/A % V/V	7.5 <i>a</i>	7.2 <i>ab</i>	7.8 <i>a</i>	8.0
10	Roundup ProMax	22	FL OZ/A	4.3 <i>c</i>	2.7 <i>d</i>	2.0 <i>c</i>	8.0
11	Clearcast MSO	32 1	FL OZ/A % V/V	5.8 <i>b</i>	5.0 <i>c</i>	6.0 <i>b</i>	8.0
12	Plateau MSO	8 1	FL OZ/A % V/V	7.3 <i>a</i>	7.2 <i>ab</i>	7.7 <i>a</i>	8.0
13	Journey MSO	21.3 1	FL OZ/A % V/V	6.2 <i>b</i>	5.0 <i>c</i>	6.5 <i>b</i>	8.0
14	Pastora Activator 90	1 0.25	OZ/A % V/V	7.3 <i>a</i>	6.7 <i>b</i>	7.8 <i>a</i>	8.0
15	Nontreated Check			8.0 <i>a</i>	8.0 <i>a</i>	8.0 <i>a</i>	8.0

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